

This listing of claims will replace all prior versions of claims in the Application.

Listing of Claims

Claim 1. (Previously Amended) A method of providing a metal seed layer substantially free of discontinuities disposed on a substrate comprising the step of contacting a metal seed layer having discontinuities disposed on a substrate having one or more apertures having a size of $\leq 1\mu\text{m}$ with an alkaline copper electroplating bath comprising copper pyrophosphate.

Claim 2. (Original) The method of claim 1 wherein the electroplating bath has a pH of from 8 to 9.

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Claim 3. (Original) The method of claim 1 wherein the electroplating bath further comprises a complexing agent.

Claim 4. (Original) The method of claim 1 wherein the electroplating bath further comprises one or more bases selected from ammonium hydroxide or tetra(C₁-C₄)alkylammonium hydroxide.

Claim 5. (Original) The method of claim 1 wherein the electroplating bath further comprises one or more compounds selected from halides, brighteners, suppressors, levelers, grain refiners, wetting agents or surfactants.

Claim 6. (Previously Amended) A method of manufacturing an electronic device comprising the step of contacting a metal seed layer having discontinuities disposed on a substrate having one or more apertures having a size of $\leq 1\mu\text{m}$ with an alkaline copper electroplating bath comprising copper pyrophosphate.

Claim 7. (Original) The method of claim 6 wherein the electroplating bath has a pH of from 8 to 9.

Claim 8. (Original) The method of claim 6 wherein the electroplating bath further comprises a complexing agent.

Claim 9. (Original) The method of claim 6 wherein the electroplating bath further comprises one or more bases selected from ammonium hydroxide or tetra(C₁-C₄)alkylammonium hydroxide.

Claim 10. (Original) The method of claim 6 wherein the electroplating bath further

comprises one or more brightener compounds in an amount of ≥ 1.5 mg/L.

Claim 11. (Previously Amended) An article of manufacture comprising an electronic device substrate containing one or more apertures having a size of $\leq 1\mu\text{m}$, each aperture containing a seed layer deposit enhanced by contact with an alkaline electroplating composition that comprises copper pyrophosphate.

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Claim 12. (Original) A method for removing excess material from a semiconductor wafer containing one or more apertures by using a chemical mechanical planarization process which comprises contacting the semiconductor wafer with a rotating polishing pad thereby removing the excess material from the semiconductor wafer; wherein the apertures contain a seed layer deposit enhanced by contact with an alkaline electroplating composition that comprises copper pyrophosphate.

Claim 13. (Original) A method for removing excess material from a semiconductor wafer containing one or more apertures by using a chemical mechanical planarization process which comprises contacting the semiconductor wafer with a rotating polishing pad thereby removing the excess material from the semiconductor wafer; wherein the apertures contain a copper deposit obtained by contact with an alkaline electroplating composition that comprises copper pyrophosphate.

Claim 14. (Previously Added) The method of claim 1 further comprising the step of subjecting the electroplating bath to sufficient current density to provide a metal seed layer substantially free of discontinuities.

Claim 15. (Previously Added) The method of claim 6 further comprising the step of subjecting the electroplating bath to sufficient current density to provide a metal seed layer substantially free of discontinuities.

Claim 16. (Newly Added) The method of claim 1 wherein the substrate is an integrated circuit device.

Claim 17. (Newly Added) The method of claim 6 wherein the substrate is an integrated circuit device.